This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A magnetic resonance imaging method ~~wherein~~ comprising the steps of:

generating magnetic resonance signals ~~are generated~~, ~~and~~

applying temporary magnetic gradient fields ~~are applied~~, ~~and wherein~~

correcting the signal amplitudes of the magnetic resonance signals, or quantities calculated from signal amplitudes, ~~are corrected~~ for deviations that are due to spatial non-linearities of the temporary magnetic gradient fields, and

applying an imaging pulse sequence after said steps of generating magnetic resonance signals and applying temporary magnetic gradient fields.

A7 cont'd

2. (currently amended) A magnetic resonance imaging method as claimed in claim 1, wherein the correction of the signal amplitudes of the magnetic resonance signals is calculated from the spatial and temporary electrical current distribution through ~~the~~ a gradient coil.

3. (original) A magnetic resonance imaging method as claimed in claim 1, wherein diffusion-weighted magnetic resonance signals are generated.

4. (currently amended) A magnetic resonance imaging method as claimed in claim 3, wherein the sequence of temporary magnetic gradient fields includes a bipolar gradient pair.

5. (original) A magnetic resonance imaging method as claimed in claim 3, wherein the sequence of temporary gradient fields includes a pair of gradient pulses that are separated by an RF refocusing pulse.

A7 Cont'd

6. (original) A magnetic resonance imaging method as claimed in claim 3, wherein the diffusion sensitivity (B) is corrected for deviations that are due to spatial non-linearities of the temporary magnetic gradient fields.

7. (original) A magnetic resonance imaging method as claimed in claim 1, wherein

the sequence of temporary gradient fields provides flow sensitivity, and

a flow quantity is derived from the magnetic resonance signals, and

the flow quantity is corrected for deviations that are due to spatial non-linearities of the temporary magnetic gradient fields.

8. (currently amended) A magnetic resonance imaging system ~~which is arranged~~ comprising:

~~to generate~~ means for generating magnetic resonance signals, ~~and~~

~~to apply~~ means for applying temporary magnetic gradient fields, ~~and~~

~~to correct~~ means for correcting the signal amplitudes of the magnetic resonance signals, or quantities calculated from the signal amplitudes, for deviations that are due to spatial non-linearities of the temporary magnetic gradient fields, and

means for applying an imaging pulse sequence after the magnetic resonance signals are generated and the temporary magnetic gradient fields are applied.

9. (currently amended) A computer-readable medium storing a computer program with computer executable instructions for performing the steps of:

generating magnetic resonance signals in a magnetic resonance imaging system, ~~and~~

applying temporary magnetic gradient fields in the magnetic resonance system, ~~and~~

correcting the signal amplitudes of the magnetic resonance signals, or quantities calculated from the signal amplitudes, for deviations that are due to spatial non-linearities of the temporary magnetic gradient fields, and

applying an imaging pulse sequence in the magnetic resonance system after the magnetic resonance signals are generated and the temporary magnetic gradient fields are applied.